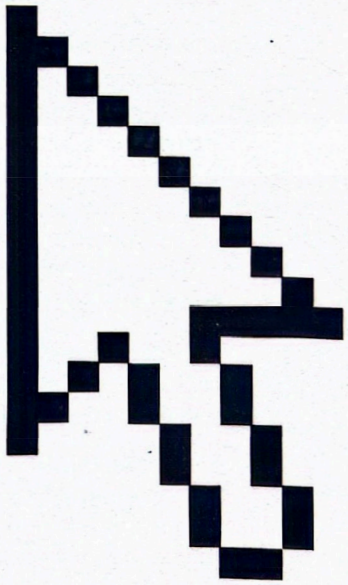
Microsoft

Microsoft® Computer Dictionary

Fifth Edition



FEDEX-1009

PUBLISHED BY
Microsoft Press
A Division of Microsoft Corporation
One Microsoft Way
Redmond, Washington 98052-6399

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Library of Congress Cataloging-in-Publication Data
Microsoft Computer Dictionary.--5th ed.
p. ; cm.
ISBN 0-7356-1495-4
1. Computers--Dictionaries. 2. Microcomputers--Dictionaries.

AQ76.5. M52267 2002
004'.03--dc21 200219714

Printed and bound in the United States of America.

1 2 3 4 5 6 7 8 9 QWT 7 6 5 4 3 2

Distributed in Canada by Penguin Books Canada Limited.

A CIP catalogue record for this book is available from the British Library.

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Body Part No. X08-41929

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quickly the CPU can execute basic instructions, such as adding two numbers, and it is used to synchronize the activities of various components in the system. Between 1981, when the IBM PC was released, and early 2002, typical clock rates for personal computers increased about 1000-fold, from 4.77 MHz to 2 GHz and faster. *Also called:* clock speed, hertz time. *See also* clock (definition 1).

clock speed *n. See* clock rate.

clock tick *n. See* CPU cycle (definition 2).

clone[1] *n.* A copy; in microcomputer terminology, a look-alike, act-alike computer that contains the same microprocessor and runs the same programs as a better-known, more prestigious, and often more expensive machine.

clone[2] *vb.* To copy or replicate the entire contents of a hard disk drive, including the operating system, configuration settings, and programs, by creating an image of the hard disk drive. Hard disk drives are often cloned for batch installation on other computers, particularly those on a network, or for use as backups.

close[1] *n.* An FTP command that instructs the client to close the current connection with a server. *See also* FTP[1] (definition 1), Web site.

close[2] *vb.* **1.** To end an application's relationship with an open file so that the application will no longer be able to access the file without opening it again. **2.** To end a computer's connection with another computer on a network.

close box *n.* In the Macintosh graphical user interface, a small box in the left corner of a window's title bar. Clicking on the box closes the window. *Compare* close button.

close button *n.* In the graphical user interface for Windows 9x, Windows NT, and the X Window System, a square button in the right corner (left corner in X Windows) of a window's title bar with an x mark on it. Clicking on the button closes the window. *Also called:* X button. *Compare* close box.

closed architecture *n.* **1.** Any computer design whose specifications are not freely available. Such proprietary specifications make it difficult or impossible for third-party vendors to create ancillary devices that work correctly with a closed-architecture machine; usually only its original maker can build peripherals and add-ons for such a machine. *Compare* open architecture (definition 1). **2.** A computer system that provides no expansion slots for adding new types of circuit boards within the system unit. The original Apple Macintosh was an example of a closed architecture. *Compare* open architecture (definition 2).

closed file *n.* A file not being used by an application. An application must open such a file before reading or writing to it and must close it afterward. *Compare* open file.

closed shop *n.* A computer environment in which access to the computer is restricted to programmers and other specialists. *Compare* open shop.

closed system *n. See* closed architecture (definition 2).

cloth ribbon *n.* An inked ribbon generally used with impact printers and typewriters. The print element strikes the ribbon and drives it against the paper so as to transfer ink; then the ribbon advances slightly to make fresh ink available. A cloth ribbon is wrapped onto a spool or loaded into a cartridge that is made to fit the printer used. Cloth ribbon, although adequate for most tasks, is sometimes replaced by film ribbon when the crispest possible output is called for. However, a cloth ribbon, which re-inks itself by capillary action, is usable for multiple impressions, unlike a film ribbon. *Compare* carbon ribbon.

CLS *n.* Acronym for **C**ommon **L**anguage **S**pecification. A subset of language features supported by the .NET common language runtime, comprised of features common to several object-oriented programming languages. CLS-compliant components and tools are guaranteed to interoperate with other CLS-compliant components and tools.

cluster *n.* **1.** An aggregation, such as a group of data points on a graph. **2.** A communications computer and its associated terminals. **3.** In data storage, a disk-storage unit consisting of a fixed number of sectors (storage segments on the disk) that the operating system uses to read or write information; typically, a cluster consists of two to eight sectors, each of which holds a certain number of bytes (characters). **4.** A group of independent network servers that operate—and appear to clients—as if they were a single unit. A cluster network is designed to improve network capacity by, among other things, enabling the servers within a cluster to shift work in order to balance the load. By enabling one server to take over for another, a cluster network also enhances stability and minimizes or eliminates downtime caused by application or system failure. *See also* client/server architecture.

cluster analysis *n.* A technique used in data mining and knowledge discovery to group observations by identifying and extracting like or similar group conditions. Cluster analysis aims to describe the structure of a complex data set. *See also* ART, data mining.

cluster controller *n.* An intermediary device that is situated between a computer and a group (cluster) of subsidiary devices, such as terminals on a network, and is used to control the cluster.

clustering *n.* The grouping of multiple servers in a way that allows them to appear to be a single unit to client computers on a network. Clustering is a means of increasing network capacity, providing live backup in case one of the servers fails, and improving data security. *See also* cluster (definition 4), server.

cluster network *n. See* cluster (definition 4).

cluster virus *n.* A type of virus that infects once but gives the appearance of infecting every application launched. A cluster virus modifies the file system so that it is loaded before any application that the user attempts to open. Because the virus is also run when running any program, it appears that every program on the disk is infected.

CLUT *n.* Acronym for **C**olor **L**ook **U**p **T**able. In digital graphics applications, a specific set of colors used in the creation of graphics. When a graphic is created or edited, the user may specify a CLUT that corresponds with the needs of print, Web, or other destination media. In Web design, a specific CLUT of browser-safe colors is used to be certain graphics and designs will display consistently across different platforms and with different browsers. *See also* browser CLUT, websafe palette.

CMI *n.* Acronym for **c**omputer-**m**anaged **i**nstruction. Any type of teaching that uses computers as educational tools. *See also* CAI, CBT.

CMOS *n.* **1.** Acronym for **c**omplementary **m**etal-**o**xide **s**emiconductor. A semiconductor technology in which pairs of metal-oxide semiconductor field-effect transistors (MOSFETs), one N-type and one P-type, are integrated on a single silicon chip. Generally used for RAM and switching applications, these devices have very high speed and extremely low power consumption. They are, however, easily damaged by static electricity. *See also* MOSFET, N-type semiconductor, P-type semiconductor. **2.** The battery-backed memory used to store parameter values needed to boot PCs, such as the type of disks and the amount of memory, as well as the clock/calendar time.

CMOS RAM *n.* Short for **r**andom **a**ccess **m**emory made using **c**omplementary **m**etal-**o**xide **s**emiconductor technology. CMOS chips consume extremely little power and have high tolerance for noise from the power supply. These characteristics make CMOS chips, including CMOS RAM chips, very useful in hardware components that are powered by batteries, such as most microcomputer clocks and certain types of scratchpad RAM that are maintained by the operating system. *See also* CMOS (definition 1), parameter RAM, RAM.

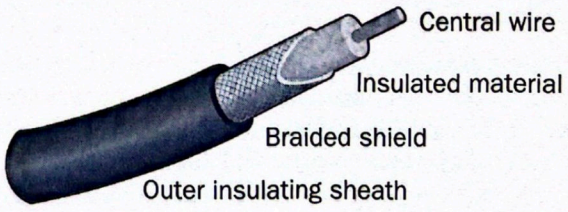
CMOS setup *n.* A system configuration utility, accessible at boot time, for setting up certain system options, such as the date and time, the kind of drives installed, and port configuration. *See also* CMOS (definition 2).

CMS *n. See* color management system.

CMY *n.* Acronym for **c**yan-**m**agenta-**y**ellow. A model for describing colors that are produced by absorbing light, as by ink on paper, rather than by emitting light, as on a video monitor. The three kinds of cone cells in the eye respond to red, green, and blue light, which are absorbed (removed from white light) by cyan, magenta, and yellow pigments, respectively. Percentages of pigments in these subtractive primary colors can therefore be mixed to get the appearance of any desired color. Absence of any pigment leaves white unchanged; adding 100 percent of all three pigments turns white to black. *Compare* CMYK, RGB.

CMYK *n.* Acronym for **c**yan-**m**agenta-**y**ellow-**k**black. A color model that is similar to the CMY color model but produces black with a separate black component rather than by adding 100 percent of cyan, magenta, and yellow. *See also* CMY.

coaxial cable *n.* A round, flexible, two-conductor cable consisting of—from the center outwards—a copper wire, a layer of protective insulation, a braided metal mesh sleeve, and an outer shield, or jacket of PVC or fire-resistant material. The shield prevents signals transmitted on the center wire from affecting nearby components and prevents external interference from affecting the signal carried on the center wire. Coaxial cable is widely used in networks. It is the same type of wiring as that used for cable television. See the illustration. *Compare* fiberoptic cable, twisted-pair wiring.



Coaxial cable.

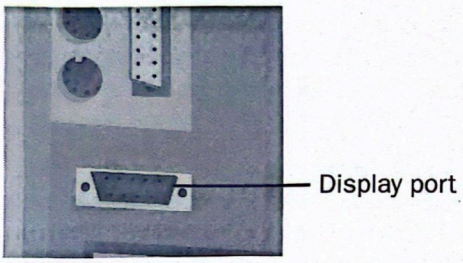
other text on the page. Sans serif faces such as Helvetica and Avant Garde often work well as display faces. *See also* sans serif. *Compare* body face.

display frame *n.* One image in an animation sequence. *See also* frame (definition 3).

display image *n.* The collection of elements displayed together at a single time on a computer screen.

display page *n.* One screenful of display information stored in a computer's video memory. Computers can have enough video memory to hold more than one display page at a time. In such instances, programmers, especially those concerned with creating animation sequences, can update the screen rapidly by creating or modifying one display page while another is being viewed by the user. *See also* animation.

display port *n.* An output port on a computer that provides a signal for a display device such as a video monitor. See the illustration. *Also called:* monitor port.



Display port.

Display PostScript *n.* An extended version of the PostScript language intended to provide a device-independent language for displaying images and text on bitmapped displays. *See also* PostScript.

Display Power Management Signaling *n. See* DPMS.

display screen *n.* The part of a video unit on which images are shown. *See also* CRT.

display terminal *n. See* terminal (definition 1).

distance learning *n.* Broadly, any educational or learning process or system in which the teacher/instructor is separated geographically or in time from his or her students, or in which students are separated from other students or educational resources. Contemporary distance learning is effected through the implementation of computer and electronics technology to connect teacher and student in either real or delayed time or on an as-needed basis. Content delivery may be achieved through a variety of technologies, including satellites, computers, cable television, interactive video, electronic transmissions via telephone lines, the World Wide Web and other Internet technology, and others. Distance learning does not preclude traditional learning processes; frequently it is used in conjunction with in-person classroom or professional training procedures and practices.

Distance Vector Multicast Routing Protocol *n.* An Internet routing protocol that provides an efficient mechanism for connectionless datagram delivery to a group of hosts across an Internet network. It is a distributed protocol that dynamically generates IP multicast delivery trees using a technique called Reverse Path Multicasting (RPM). *Acronym:* DVMRP.

distance-vector routing algorithm *n. See* Bellman-Ford distance-vector routing algorithm.

distortion *n.* An undesirable change in the waveform of a signal. Distortion can occur during signal transmission, as when a radio broadcast becomes garbled, or when a signal passes through a circuit, as when a stereo system is turned up too loud. Distortion often results in loss of information. It is mainly a problem in analog signals; digital signals are not affected by moderate distortion.

distribute *vb.* To allocate among locations or facilities, as in a data-processing function that is performed by a collection of computers and other devices linked together by a network.

distributed bulletin board *n.* A collection of newsgroups distributed to all computers in a wide area network. *See also* newsgroup, Usenet.

Distributed COM *n. See* DCOM.

Distributed Component Object Model *n. See* DCOM.

distributed computing *n. See* distributed processing.

Distributed Computing Environment *n.* A set of standards from the Open Group (formerly the Open Software Foundation) for development of distributed applications that can operate on more than one platform. *Acronym:* DCE. *See also* distributed processing.

distributed database *n.* A database implemented on a network. The component partitions are distributed over various nodes (stations) of the network. Depending on the specific update and retrieval traffic, distributing the database can significantly enhance overall performance. *See also* partition (definition 2).

distributed database management system *n.* A database management system capable of managing a distributed database. *Acronym:* DDBMS. *See also* distributed database.

distributed denial of service attack *n. See* DDoS.

distributed file system *n.* A file management system in which files may be located on multiple computers connected over a local or wide area network. *Acronym:* DFS.

distributed intelligence *n.* A system in which processing ability (intelligence) is distributed among multiple computers and other devices, each of which can work independently to some degree but can also communicate with the other devices to function as part of the larger system. *See also* distributed processing.

distributed network *n.* A network in which processing, storage, and other functions are handled by separate units (nodes) rather than by a single main computer.

distributed processing *n.* A form of information processing in which work is performed by separate computers linked through a communications network. Distributed processing is usually categorized as either plain distributed processing or true distributed processing. Plain distributed processing shares the workload among computers that can communicate with one another. True distributed processing has separate computers perform different tasks in such a way that their combined work can contribute to a larger goal. The latter type of processing requires a highly structured environment that allows hardware and software to communicate, share resources, and exchange information freely.

distributed services *n. See* BISDN.

distributed system *n.* A noncentralized network consisting of numerous computers that can communicate with one another and that appear to users as parts of a single, large, accessible "storehouse" of shared hardware, software, and data.

Distributed System Object Model *n.* IBM's System Object Model (SOM) in a shared environment, where binary class libraries can be shared between applications on networked computers or between applications on a given system. The Distributed System Object Model complements existing object-oriented languages by allowing SOM class libraries to be shared among applications written in different languages. *Acronym:* DSOM. *See also* SOM (definition 1).

distributed transaction processing *n.* Transaction processing that is shared by one or more computers communicating over a network. *Acronym:* DTP. *See also* distributed processing, transaction processing.

distributed workplace *n.* An environment other than the traditional office or factory, in which work is carried out on a regular basis. The flexibility afforded by the combination of communications and computing technologies enables many workers to conduct business anywhere the appropriate computer and data communications infrastructure has been set up. *See also* SOHO, telecommute.

distribution group *n.* A group that is used solely for e-mail distribution and that is not security-enabled. Distribution groups cannot be listed in discretionary access control lists (DACLs) used to define permissions on resources and objects. Distribution groups can be used only with e-mail applications (such as Microsoft Exchange) to send e-mail messages to collections of users. If you do not need a group for security purposes, create a distribution group instead of a security group. *See also* discretionary access control list, security group.

distribution list *n.* A list of recipients on an e-mail mailing list. This can be in the form of either a mailing list program, such as LISTSERV, or an alias in an e-mail program for all recipients of an e-mail message. *See also* alias (definition 2), LISTSERV, mailing list.

distribution services *n. See* BISDN.

distributive sort *n.* An ordering process in which a list is separated into parts and then reassembled in a particular order. *See also* sort algorithm. *Compare* bubble sort, insertion sort, merge sort, quicksort.

distro[1] *n.* **1.** A distribution of software (usually a version of Linux), digital music, or an online magazine or e-zine. *See also* e-zine, Linux. **2.** A company or individual that sells items, typically software, music CDs, or books, via the Web.

distro[2] *vb.* To distribute or sell software releases, digital music, or text items via the Web.

dithering *n.* A technique used in computer graphics to create the illusion of varying shades of gray on a monochrome display or printer, or additional colors on a color display or printer. Dithering relies on treating areas of an